Remarks

Claims 1-4 are pending in the application. Claims 1 and 2 were rejected under 35 U.S.C. § 103 as described on pages 3 and 4 of the Office Action. Claims 3 and 4 were rejected under 35 U.S.C. § section 103 as described on pages 4 and 5 of the Office Action. Claim 1 is the only independent claim.

The specification has been amended to overcome the outstanding objections described on page 2 of the Office Action and in general to place the application in better U.S. form.

Attached hereto are Replacement Formal Drawings wherein each of Figs. 7 and 8(a) – 8(c), have been designated by a legend --Prior Art--, as suggested in page 2 of the Office Action. Accordingly, Applicant respectfully requests that the outstanding objection to the drawings be withdrawn.

Each of claims 1-4 have been amended so that they would not be construed under 35 U.S.C. § 112, sixth paragraph. The remainder of the amendments to the claims generally place the claims in better U.S. form without narrowing the scope of the claims as originally presented.

Claims 1-4 are patentable over the prior art of record for the following reasons.

As shown in Figures 1 and 4, the present application discloses interpolating a non-sampling point corresponding to a channel clock from the output signal of a transversal filter by using either a straight-line interpolation unit or a high-order interpolation unit. In accordance with the present invention, the interpolated data is used only when an equalization target value is distinguished in the adaptive equalization control in the control unit. Therefore, the present invention prevents instability of the distinction of the equalization target value when the 2-frequency-divided clock is used. Further, the present invention copes with an increase of the channel clock according to the reduction of a circuit scale and the high-speed playback, by using only the data sampled by the 2-frequency-divided clock for the filter coefficient control in the control unit. This feature is recited in independent claim 1, as discussed below.

Independent claim 1 is drawn to a reproduction signal processor comprising an analog/digital converter, an automatic equalizer, a phase locked loop, and a frequency divider. The automatic equalizer of claim 1 comprises a transversal filter, an interpolation unit and a control unit. The control unit of claim 1 is required to be "**operable to estimate an equalization target value in accordance with the output of said transversal filter, and to control a**

parameter of said transversal filter to minimize an equalization error which is an error between the equalization target value and the output of said transversal filter."

Neither Tsuchinaga nor Kayanuma, either singly or in combination, discloses or suggests the above-identified limitation.

As discussed on page 3 of the Office Action, "Tsuchinaga does not teach the automatic equalizer having a transversal filter, a straight-line interpolator, or a control unit."

Kayanuma fails to disclose or suggest the shortcomings of Tsuchinaga, such that a combination of Tsuchinaga in view of Kayanuma would disclose or suggest that which is required in independent claim 1. Specifically, Kayanuma does not disclose or suggest a control unit as recited in independent claim 1.

Kayanuma discloses an adaptive filter comprising a first interpolating circuit, a second interpolating circuit and a tap coefficient controlling circuit. The first interpolating circuit interpolates the digital sampling signal corresponding to one channel clock from the output signal of the transversal filter sampled by performing 2-frequency division on the channel clock in order to perform error detection and code reverse detection, and generates one channel clock data in parallel per 2-frequency-divided channel clock. The second interpolating circuit interpolates the digital sampling signal corresponding to one channel clock from the input signal of the transversal filter in order to control the tap coefficient of the transversal filter, and generates one channel clock data in parallel per 2-frequency-divided channel clock. The tap coefficient controlling circuit controls the tap coefficient using a digital signal almost equal to a case where sampling is performed by a channel clock.

Kayanuma does not disclose or suggest estimating an equalization target value in accordance with the output of the transversal filter. Accordingly, Kayanuma fails to disclose or suggest a control unit operable to estimate an equalization target value in accordance with the output of the transversal filter, and to control a parameter of the transversal filter to minimize an equalization error which is an error between the equalization target value and the output of the transversal filter as recited in claim 1.

As discussed in page 4 of the Office Action, Spurbeck is relied upon for teaching "an interpolation circuit having improved performance when the signal is sample at a much lower rate than the baud rate." However, Spurbeck fails to teach a control unit as recited in claim 1.

Because neither Tsuchinaga, Kayanuma nor Spurbeck discloses or suggests the control unit as recited in claim 1, the combination of Tsuchinaga, Kayanuma and Spurbeck additionally fails to disclose or suggest the control unit as recited in claim 1.

Furthermore, in light of the differences between claim 1 and the combination of Tsuchinaga, Kayanuma and Spurbeck, one of ordinary skill in the art at the time of the invention would not have been motivated to modify a combination of Tsuchinaga, Kayanuma and Spurbeck to arrive at that which is recited in claim 1.

Accordingly, it is submitted that claims 1-4 are patentable over the prior art of record and it is requested that the outstanding rejections of claims 1-4 under 35 U.S.C. § 103 be withdrawn.

Having fully and completely responded to the Office Action, Applicant submits that all of the claims are now in condition for allowance, an indication of which is respectfully solicited.

If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to call Applicant's attorney at the telephone number shown below.

Respectfully submitted,

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